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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,027	03/15/2004	Brant Duke	2993-527US CMB/clb	6863
32292	7590	07/25/2005	EXAMINER	
OGILVY RENAULT LLP (PWC) 1981 MCGILL COLLEGE AVENUE SUITE 1600 MONTREAL, QC H3A 2Y3 CANADA			HE, AMY	
			ART UNIT	PAPER NUMBER
			2858	
DATE MAILED: 07/25/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/800,027	<b>Applicant(s)</b> DUKE, BRANT	
	<b>Examiner</b> Amy He	<b>Art Unit</b> 2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____.  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/15/04</u> .   | 6) <input type="checkbox"/> Other: ____.                                    |

## **DETAILED ACTION**

### ***Drawings***

1. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because of the hand written labels and lines in Figures 1, 3 and 4. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 5-7 and 10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith (U. S. Patent No. 4, 733, 155).

Referring to claims 1 and 6, Smith discloses a method and apparatus (in Figures 1-2) for determining a turbine shaft speed of a gas turbine engine (11), the engine (11) having a turbine shaft (15) drivingly connected to an alternator (16, 18), the alternator (16, 18) adapted to generate electricity for a first purpose, said method and apparatus comprising:

input means (input to 32 ) for receiving a alternator rotation frequency signal (frequency of the output from the alternator 16, col. 2, lines 21-22) from the alternator (16) ; and

a processing unit (the control circuit 24) for determining said gas turbine shaft speed using said signal (control circuit 24 receives the frequency signal from the alternator and determines a over-speed condition of the shaft and provides a speed error signal, col. 2, lines 21-27 and lines 51-66).

Referring to claims 2 and 7, Smith discloses that the signal is derived from said generated electricity (from alternator 16 in Figure 1) and the method and apparatus further comprises a signal conditioning unit (pulse shaper 30 in Figure 2) for conditioning said signal to extract a rotational frequency component therefrom.

Referring to claim 5, Smith discloses that a voltage (output from alternator 16) is used to determine the rotation frequency component.

Referring to claim 10, Smith discloses that the signal comprises an alternator voltage signal (output from alternator 16) and the apparatus further comprises a signal conditioning unit (pulse shaper 30 in Figure 2) for extracting the frequency component from the signal.

Referring to claim 11, Smith discloses (in Figure 1) a method of operating a gas turbine engine (11), the engine having a turbine shaft (15) drivingly connected to a permanent magnet alternator (PMA 16), the method comprising the steps of:

operating the engine (11) to rotate the turbine shaft(15) and thereby rotate the alternator (16);

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extracting generated electricity from the alternator (15) to thereby provide operational electrical power to at least a first piece of equipment ( 24 or 20);

extracting from the generated electricity a frequency (frequency of the output from the alternator 16, col. 2, lines 21-23) indicative of alternator rotation speed;

determining a rotation speed of the turbine shaft (15) using said frequency (control circuit 24 receives the frequency signal from the alternator and determines a over-speed condition of the shaft and provides a speed error signal, col. 2, lines 21-27 and lines 51-66); and

providing the determined rotation speed to an engine controller (the drive device 20) for use in controlling operation of the gas turbine engine (11).

Referring to claim 12, Smith discloses that the first piece of equipment is the engine controller (20, 24).

Referring to claim 13, Smith discloses that the frequency is a voltage frequency (output from 32 is a voltage signal indicative of the frequency of the alternator, col. 2, lines 31-34).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3. Claims 3-4 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith (U. S. Patent No. 4, 733, 155), in view of Wakao et al. (U. S. Patent No. 6, 035,960).

Referring to claims 3-4 and 8-9, Smith discloses the method/apparatus of claims 1 and 6. Smith does not specifically disclose determining the gas turbine shaft speed using a gearing ratio between the gas turbine and alternator shafts and a ratio of alternator generated electrical signal cycles per revolution of the alternator.

However, calculating the shaft speed using a gearing ratio and a ratio of alternator generated electrical signal cycles per revolution of the alternator is not new in the art, as evidenced in Wakao et al. (the reference teaches calculating the speed of the engine using a pulley ratio and a pulsation coefficient, corresponding to the claimed ratios, col. 3, line 64-col. 4, line 16).

A person of ordinary skill in the art would find it obvious at the time the invention was made to modify smith to calculate the gas turbine shaft speed using the equation containing the gearing ratio and the ratio of alternator generated electrical signal cycles per revolution of the alternator, as taught by Wakao, in order to obtain the shaft speed for further processing or further control of the gas turbine engine, as desired by different applications.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Carroll (U. S. Patent No. 4, 321, 791) discloses (in Figures 5A-5C) a speed regulator circuit receiving a desired gas turbine shaft speed and a AFV signal (alternator frequency to voltage signal) proportional to the speed of output shaft of the turbine.

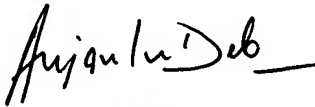
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy He whose telephone number is (571) 272-2230. The examiner can normally be reached on 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AH

July 20, 2005.

  
**ANJAN DEB**  
**PRIMARY EXAMINER**